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February 6, 2006

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Group Art Unit: 1746
U.S. Patent and Trademark Office

From: Gregory J. Lunn

Re: Our File - JDI-291

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MESSAGE/COMMENTS

APPEAL BRIEF

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Filed: March 18, 2004
Applicant: Benjamin Laux
Title: NO VOC SOLVENT BLEND
Art Unit: 1746
Examiner: Sharidan Carrillo
Atty Docket: JDI-291
Confirmation No.: 6538

PLEASE DELIVER TO EXAMINER SHARIDAN CARRILLO

Attached please find an Appeal Brief in the above-identified application.

Because applicant previously paid the fee for the Appeal Brief, there should be no charge for filing this Brief. If this is not correct, the Commissioner is authorized to charge any such fees to Deposit Account No. 23-3000.

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February 6, 2006

Cynthia P. Scario February 6, 2006
Cynthia P. Scario Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte Benjamin Laux

Appeal No. _____

Serial No.: 10/803,859
Filed: March 18, 2004
Group Art Unit: 1746
Examiner: Sharidan Carrillo
Applicant: Benjamin Laux
Title: NO VOC SOLVENT BLEND

Cincinnati, Ohio 45202

February 6, 2006

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APPEAL BRIEF

This brief is in furtherance of Applicant's Notice of Appeal filed January 5, 2006, appealing the decision of the Examiner dated October 6, 2005, finally rejecting claims 1-6 (all pending claims). A copy of the claims appears in the Appendix to this Brief.

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I. Real Party in Interest

The real party in interest is JohnsonDiversey, Inc.

II. Related Appeals and Interferences

There are no other prior or pending appeals, interferences or judicial proceeding related to the subject case. Applicant filed a Notice of Appeal on June 6, 2005 in this case. The Examiner re-opened prosecution and sent a new Office Action on October 6, 2005. This is an appeal of the October 6, 2005, Office Action.

III. Status of Claims

Claims 1-6 are pending in the above case and stand rejected under 35 U.S.C. § 103(a). These are all being appealed.

Claims 7 and 8 have been canceled and are not being appealed.

IV. Status of Amendments

The Amendment dated May 17, 2005, was entered pursuant to the Advisory Action mailed May 26, 2005.

V. Summary of Claimed Subject Matter

There is one independent claim pending in the above application. This claim is directed at a solvent blend which is not a volatile organic compound. In other words, the

solvent blend has a vapor pressure less than 0.1 mmHg at 20° C. The claimed blend effectively dissolves grease and oil.

The claimed composition includes three components a) a petroleum distillate, b) a glycol ether, c) a C₁-C₄ alkyl ester or di-ester having a carbon chain length of less than 18. Each of these components, a, b, and c, as well as the total composition, has a vapor pressure less than 0.1 mmHg at 20° C.

The composition must have 30 to 60% by weight of the petroleum distillate, 20 to 50% by weight of the glycol ether which is soluble in the petroleum distillate, and at least 10% by weight of the C₁-C₄ ester. (See page 2, line 18, to page 4, line 15.) As proven in the examples (pages 5-7), the blend of solvents out performs the individual components as well as any combination of two of the three components, and is generally better than d-limonene which is a volatile organic compound because of its higher vapor pressure.

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Klier et al U.S. Patent 5,811,383.

VII. Argument

The present invention is a non-VOC solvent blend. Claim 1 reads as follows:

1. A solvent blend having a vapor pressure less than 0.1 mm Hg at 20° C comprising
 - 30% to 60% by weight of a petroleum distillate having a vapor pressure of less than 0.1 mm Hg at 20° C;
 - 20% to 50% by weight of a glycol ether soluble in said petroleum distillate and having a vapor pressure of less than 0.1 mm Hg at 20° C;
 - at least 10% by weight of a C₁-C₄ ester having a carbon chain length less than 18 and having a vapor pressure of less than 0.1 mm Hg at 20° C.

A solvent having a vapor pressure less than 0.1 mmHg at 20° C is not a volatile organic compound. VOCs are undesirable because of their adverse environmental impact. But, VOCs are generally good at dissolving grease and oil. As indicated, none of the three recited components of the present invention are VOC solvents. The claim can be broken down into five elements:

- Element 1: The total blend is not a volatile organic compound.
- Element 2: The blend includes component A which is 30-60% by weight of a petroleum that is not a volatile organic compound.
- Element 3: The blend includes component B which is 20-50% by weight of a glycol ether, which is not a volatile organic compound.
- Element 4: The composition includes component C which is 10% or more by weight of a C₁-C₄ ester having a maximum carbon chain length of 18 and is also not a volatile organic compound.

- Element 5: At least 60% of the composition must be formed from the combined A, B, and C. (This is the total of the minimum percentages of each of the above three components, A, B, and C.)

This composition is intended to dissolve grease. The composition was tested. These test results are shown in EXAMPLES 1, 2, and 3 of the specification. As shown in TABLE 1 of EXAMPLE 1, the no VOC solvent blend of the present invention removed 94.39% of the grease in the test sample. The individual components of the blend removed anywhere from 48-69%. As a comparison, applicant tested d-limonene, which is a volatile organic compound. Therefore, it would be expected to remove more grease. The no VOC solvent blend out-performed d-limonene.

EXAMPLE 2 repeated this test and used three different no VOC solvent blends, labeled blend A, B and C, based on the ester utilized. All of these out performed the individual components, and two of the three out performed the d-limonene. The no-VOC solvent blend, B, removed 89.55% of the grease, whereas the d-limonene removed 90.25. Again, these are very good results comparable to or superior to the VOC, d-limonene. It is an unexpected advantage that a non-VOC solvent blend can perform comparably with a VOC solvent such as d-limonene, as demonstrated in EXAMPLE 2.

Finally, EXAMPLE 3 was submitted to establish the relative efficacy of the present invention compared to combinations of two out of the three components. This example showed that the 3-component blend out performed the 2-component blend, combining two of any of the three components. This is a second unexpected advantage.

The only cited reference is Klier et al. US patent 5,811,385. As supported by the fact the Examiner issued a new Office Action after applicant's first appeal brief, the Klier

reference is extremely confusing. The Klier reference discloses a high water content, oil continuous micro-emulsion, or emulsion. The Klier reference also teaches a basically water free concentrate. The Klier reference does not, in any way, lead one of ordinary skill in the art to applicant's invention. It fails to suggest the advantages achieved by applicant's claimed invention. The reference simply discloses a combination of solvents.

The Examiner is only relying on a portion of the disclosure in Klier, as stated in the October 6, 2005, Office Action:

"Klier teaches two concepts (a) a micro emulsion comprising greater than 40% water and less than 60% organic solvent mixture (column 1, lines 43-53) and (b) the less than 60% organic solvent mixture having 98% organic solvent and 2% water (column 1, lines 50-53). The examiner is no longer relying on the teaching of Klier as a micro emulsion comprising greater than 40% water and less than 60% organic solvent mixture. The Examiner is relying on the second concept of a solvent mixture having 90% solvent and 2% water."

The only portion of the Klier reference that is devoted specifically to this 98% organic solvent mixture is column 2, lines 38-54. Everything else, except claim 2 and the claims dependent thereon, is devoted to the micro emulsion or emulsion. All of the examples discuss formation of micro emulsions.

As disclosed in Klier, the organic solvent can be one or more of eight potential general classes of solvents. These classes include:

- 1) aliphatic alcohols;
- 2) aliphatic esters;
- 3) aliphatic hydrocarbons;
- 4) chlorinated aliphatic hydrocarbons;
- 5) aromatic hydrocarbons;

- 6) aliphatic di-esters;
- 7) aliphatic ketones; and
- 8) aliphatic ethers.

The preferred solvent is the glycol monoether in a mixture with one or more other organic solvents. (See column 5, lines 31-33.) The reference does not specifically mention petroleum distillates, but does mention a variety of aliphatic hydrocarbons, which could be petroleum distillates. These are set forth in column 4, lines 33-44. But, not all hydrocarbons are petroleum distillates. Many, if not most, of these aliphatic hydrocarbons would be categorized as volatile organic compounds. Klier specifically indicates that the preferred hydrocarbons contain 3-24 carbon atoms, preferably 6-24 carbon atoms. These include propane, butane, hexane, octane, and decane, all of which should be considered volatile organic compounds.

The total number of possible combinations that could be formulated based on the description of organic solvents contained at column 4, line 4, through column 5, line 30, is extremely high.¹ The overwhelming majority of these potential combinations would not fall within the scope of claim 1 because they are VOC's (even assuming they met the other limitation of claim 1).

Arriving at applicant's invention utilizing this disclosure would be a totally random act, and certainly is not suggested by this reference, the nature of the problem being solved, or knowledge of persons of ordinary skill in the art.

¹ Applicant has not calculated the number of potential combinations. But, undoubtedly, there must be thousands, if not tens of thousands, of possible combinations.

Referring back to the five separate elements of the pending claim 1, it is clear that the Klier reference does not disclose or suggest each of these five elements.

Element 1 is that the composition not be a volatile organic compound. Klier does not mention or disclose whether any of the particular components are VOCs. It is clear from the disclosure that some are, and some are not, VOCs. But, there is no suggestion to pick or choose a particular non-VOC solvent. In particular, the examples, as discussed below, clearly teach one away from selecting non-VOC solvents.

Element 2 is that the composition include 30-60% of a non-VOC petroleum distillate.

The Klier reference fails to disclose many features of this element. The Klier reference fails to specifically disclose petroleum distillates. Klier does not disclose the use of 30-60% by weight of the petroleum distillate. Certainly, it does not teach the 30% minimum. Further, it does not suggest a non-VOC petroleum distillate. Klier does not discuss the vapor pressure of any solvent. The examples in Klier include compositions such as heptane, d-limonene, perchloroethylene, and propane. These are all volatile organic compounds. Again, although one can perhaps pick and choose a non-VOC petroleum distillate from the large number of aliphatic hydrocarbons listed, it is certainly not suggested. One is not directed to this. Further, since volatile organic compounds are generally better solvents than non-VOC solvents, Klier would actually encourage one to use a volatile organic compound.

Element 3 is 20-50% of a glycol ether, which is also not a volatile organic compound.

It is assumed that the glycol ethers disclosed in the Klier reference are not volatile organic compounds. But, the amount of glycol ether is very difficult to ascertain from Klier.

This is discussed at column 5, lines 31-46 of Klier. At first, it indicates that the glycol ether should be present at 5 weight percent, and less than 50%, preferably less than 25%. The last sentence, however, states that the glycol monoether is present in the emulsions containing 70-80% water in an amount greater than 5 weight percent based on the total weight of the emulsion, and less than 15%. The above is what the Examiner relied upon to disclose the claimed concentration range. But, this disclosure in the Klier reference is discussing the concentration in the micro emulsion. The Examiner stated that she is only relying on the disclosure relating to the 98% solvent. If one uses this disclosure to calculate the presumed concentration in the 98% solvent mixture, the concentration of glycol ether can be too low depending on certain assumptions, i.e., water content, etc.

Element 4 is at least 10% of a C₁-C₄ ester having a carbon chain length of 18 or less, which is also not a volatile organic compound.

Aliphatic esters is one of the eight classes of potential solvents that can be combined to arrive at the micro emulsion disclosed in the Klier reference. However, none are used in any of the examples, nor is there any discussion of the vapor pressure of the selected ester. Further, there is no suggestion to use at least 10% of the ester.

Furthermore, although there is a suggestion in the Klier reference to use the glycol ether in combination with one or more organic solvents, there is certainly no suggestion to use the ester in combination with a glycol ether and the petroleum distillate, all being non-VOCs.

Element 5 is that the composition contains at least 60% of the petroleum distillate in combination with a glycol ether in combination with a C₁-C₄ ester. This 60% is arrived at by simply combining the minimum amounts of each of the three components a, b, and c.

The Examiner has interpreted Klier as stating the solvent concentrate has 98% solvent. That is incorrect. Klier teaches a solvent concentrate is formed from solvents that if saturated with water would contain less than 2% water.² Klier teaches that the concentrate comprises (column 2, lines 39-40) solvent and 0.1% to 10% surfactant (column 2, lines 53-57). But, it does not say how much solvent is required.

With respect to selection of solvents with the appropriate vapor pressure, i.e., non-VOC solvents, the Examiner's position is:

"the limitations are a property of the composition. Therefore, since Klier et al. teach the same composition as the instantly claimed invention, one would reasonably expect the composition of Klier et al. to possess those properties, absence of a showing otherwise."

This begs the question Klier does not teach the claimed composition. If it did, the rejection should be under 35 USC §102. Disclosing potentially thousands of tens of thousands of possible permutations does not disclose applicant's composition.

The examples in Klier lead one away from applicant's invention. EXAMPLE 1 discloses blends having docecane, Norpar (a hydrocarbon mixture), and Norpar plus Dowanal DpnB (a glycol ether). There is no reference to a petroleum distillate. TABLE 3 shows heptane, a volatile organic compound, as part of the solvent, as does TABLE 4. TABLES 5, 6, 10, 11, and 12, all disclose d-limonene as a solvent. Again, this is a volatile organic compound. Likewise, TABLES 7, 8, 9, 14, 16, 18 and 20 disclose low molecular weight alkanes, such as heptane and propane, as solvents. Again, these are volatile organic solvents. Other examples disclose perchloroethylene, which is a volatile organic compound, as well as toluene, which is also a volatile organic compound (TABLE 19).

²This could exclude many, if not all, of the relevant C₁-C₄ esters, which are relatively polar.

Other compounds could be volatile organic compounds, but their vapor pressure is not provided. Therefore, it is very difficult to determine whether some of the Norpar and Isopar compounds, as well as some of the other commercially described solvents disclosed in the Klier patent, are volatile organic compounds. But, the bottom line is, the majority, if not all, of the blends use a large percentage of volatile organic compounds. None of the examples disclose the use of C₁-C₄ esters, as claimed by applicant.

It is clear that the rejection of the claims based on the Klier reference is hindsight reconstruction. There can be no motivation to modify the disclosure in the Klier reference to arrive at applicant's invention when Klier fails to mention volatile organic compounds. How can there be any suggestion to arrive at the combination of the three specific components claimed in applicant's invention when there are no examples that disclose even the use of the C₁-C₄ ester claimed in applicant's composition?

How can there be a suggestion of the concentrations of these solvents when the disclosure relied upon in the reference is silent as to concentration? The Examiner has indicated that no weight should be given to the percentages because of lack of criticality. This is improper. Applicant teaches the importance (and cost) of the ester component (specification, page 4, second paragraph). Applicant teaches operable ranges of all of the components.

This is not a case where the prior art teaches 3% and applicant claims 4.2%. In this case, the Klier reference provides no disclosure of the concentration of hydrocarbon or ester. Applicant's disclosure of operable ranges must be considered.

There are three possible sources for a motivation to modify a reference. The nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons

of ordinary skill in the art." The Court forbids the use of hindsight in the selection and modification of references. See *In re Gorman* 933 Fed 2nd 982, 986, 18 USPQ 2nd 1885, 1888 (Fed Cir 1991), and *In re Rouffet* 47 USPQ 2nd 1453, 1457 (Fed Cir 1998). "The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular." *In re Dembiczak* 50 USPQ 2nd 1614, 1617 (Fed Cir 1999).

The Advisory Action mailed May 26, 2005, set forth the Patent Office's position on the issue. The Examiner's statement acknowledged that the rejection was, "in a sense necessarily a reconstruction based upon hindsight reasoning"³, but maintained that it was based only on knowledge within the level of ordinary skill at the time of the claimed invention. But, again, there is no evidence cited. This is not evidence. It is an unsupported conclusory statement. The Examiner's basis for modifying this reference is neither clear nor particular. There is no evidence in the record that shows any suggestion to modify the disclosure in Klier to arrive at applicant's claimed invention. The reference itself teaches away from applicant's claimed invention.

Further, applicant has demonstrated criticality in the combination of the three components. As shown by the examples in applicant's specification, these three components out perform the combination of any two components, or any one component by itself. That is an unexpected result. The results are comparable to or better than a volatile organic solvent, d-limonene. The fact that they are not vastly superior to d-limonene, as mentioned by the Examiner, is not critical. Applicant's invention is intended

³This statement was modified slightly in the October 6, 2005, response.

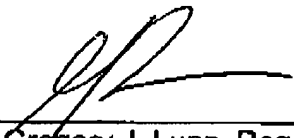
~~to perform~~ as well as a volatile organic compound without being a volatile organic compound. That is an unexpected advantage.

Applicant has claimed a solvent mixture that is not a volatile organic compound in which at least 60% of the solvent mixture is formed from non-volatile organic compounds. The Klier reference simply does not suggest this. There is nothing in the record that would lead one to modify the disclosure in Klier to arrive at the claimed invention. Therefore, the rejection of claims 1-6 is improper.

In light of the above, applicant would request that the rejection of the pending claims be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A solvent blend having a vapor pressure less than 0.1 mm Hg at 20° C comprising
 - 30% to 60% by weight of a petroleum distillate having a vapor pressure of less than 0.1 mm Hg at 20° C;
 - 20% to 50% by weight of a glycol ether soluble in said petroleum distillate and having a vapor pressure of less than 0.1 mm Hg at 20° C;
 - at least 10% by weight of a C₁-C₄ ester having a carbon chain length less than 18 and having a vapor pressure of less than 0.1 mm Hg at 20° C.
2. The solvent blend claimed in claim 1 wherein said petroleum distillate is a hydro treated light petroleum distillate.
3. The solvent blend claimed in claim 1 wherein glycol ether is selected from the group consisting of propylene glycol n-butyl ether, propylene glycol n-propyl ether, diethylene glycol monobutyl ether, ethylene glycol monobutyl ether, dipropylene glycol methyl ether, tripropylene glycol methyl ether, dipropylene glycol n-propyl ether, dipropylene glycol mono n-butyl ether, tripropylene glycol mono n-butyl ether, propylene glycolphenyl ether and propylene glycol n-butyl ether, and blends thereof.
4. The solvent blend claimed in claim 1 wherein said ester is a methyl ester.

5. The solvent blend claimed in claim 1 wherein said ester is a monobasic ester.

6. The solvent blend claimed in claim 1 wherein said ester has a carbon length of 12 or less.

IX. EVIDENCE APPENDIX

No affidavits or evidence under Sections 1.130, 1.131, or 1.132 have been submitted.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.